

# *Field Report*

## Rocky Mountain Arsenal National Wildlife Refuge

### ■ 1.0 Summary

The Rocky Mountain Arsenal National Wildlife Refuge is an active remediation or environmental clean-up site. Visitor access on the Refuge is limited while environmental clean-up activities are underway in the transition of the Arsenal to a Refuge. Once the U.S. Environmental Protection Agency has determined that site remediation is complete, the USFWS will assume full control of the property and it will be designated as a fully functioning Wildlife Refuge.

The goals for the Refuge include the following, listed in order of priority:

- Ensure the protection and enhancement of wildlife resources;
- Provide opportunity and access for the public to enjoy the Refuge; and
- Provide educational opportunities about the Refuge and its resources.

Potential Alternative Transportation System (ATS) needs have been identified for this site as follows:

- Alternative fueled trams to follow circuit around interior of Refuge;
- Shuttle service to connect the Refuge with overflow parking areas in the area to expand ability to accommodate visitors without using Refuge land to create additional parking;
- Better connection to the existing and proposed transit system of the Denver metro area; and
- The Refuge trails should connect to the regional trail system, including trails to connect to adjacent communities such as Stapleton, Montbello and Commerce City neighborhoods.

The Refuge is in the enviable position of being able to plan and institute a circulator system before the large numbers of visitors besiege the site, allowing for easier construction of the system.

## Sign on Refuge Property (BRW)



## ■ 2.0 Background Information

### 2.1 Location

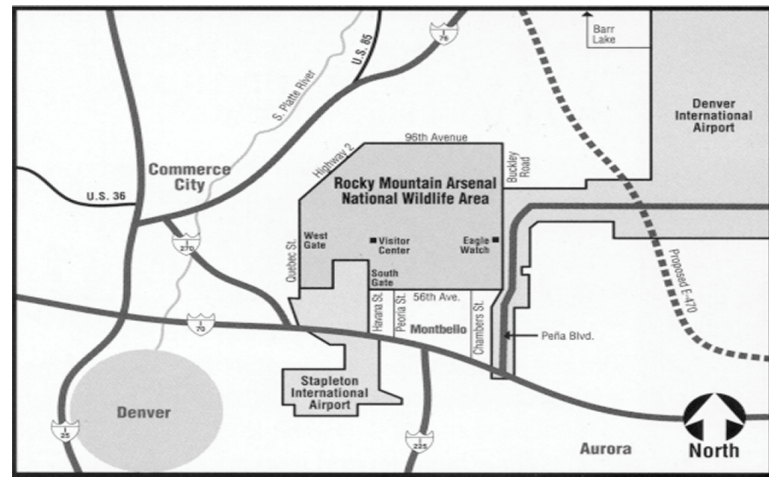
Rocky Mountain Arsenal National Wildlife Refuge is located on 27 square miles northeast of Denver, Colorado (see Figure 1). Other adjacent jurisdictions include Commerce City, the City of Aurora, and Adams County. The Refuge is located within the service area for Denver's Regional Transportation District. The property is an active remediation site, therefore, access is restricted to the southern portion of the Refuge while the property is undergoing environmental clean-up.

### 2.2 Administration and Classification

In October of 1992, Congress set the Rocky Mountain Arsenal aside as a national wildlife refuge, though its official designation will not occur until environmental remediation is complete. It is one of the largest urban wildlife refuges in the United States and it aims to protect endangered species, enhance wildlife habitat, preserve natural diversity, and furnish a place for people, especially those living in the city, to enjoy and learn about wildlife. While the Rocky Mountain Arsenal property is not officially a Wildlife Refuge, it is

mandated that the USFWS manage the property as if it were so designated. It is commonly known as the Rocky Mountain Arsenal National Wildlife Refuge.

**Figure 1. Regional Location Map**



## 2.3 Physical Description

The former Rocky Mountain Arsenal property is located on the high plains east of the foothills of the Rocky Mountains. This area is two and one-half times larger than the largest contiguous open spaces to be found in the Denver metropolitan area (Chatfield State Recreation Areas). The terrain is gently rolling and includes grasslands, woodlands, streams, and man-made lakes. Much of the property was farmed prior to its acquisition by the government so most of the land has been altered from its natural state. The Refuge is home to over 300 species of mammals, birds, fish, reptiles, and amphibians.

## 2.4 Mission and Goals of the National Wildlife Refuge

The principles providing guidance for planning and operation of the Rocky Mountain Arsenal National Wildlife Refuge include the purposes established by the Rocky Mountain Arsenal National Wildlife Refuge Act of 1992 and the goals established by the Comprehensive Management Plan.

The Rocky Mountain Arsenal National Wildlife Refuge Act of 1992 specified eight purposes for which the Refuge has been established:

1. To conserve and enhance populations of fish, wildlife, and plants within the Refuge, including populations of waterfowl, raptors, passerines (songbirds), and marsh and water birds;
2. To conserve species listed as threatened or endangered under the Endangered Species Act and species that are candidates for such listing;

3. To provide maximum fish- and wildlife-oriented public uses at levels compatible with the conservation and enhancement of wildlife and wildlife habitat;
4. To provide opportunities for compatible scientific research;
5. To provide opportunities for compatible environmental and land use education;
6. To conserve and enhance the land and water of the Refuge in a manner that will conserve and enhance the natural diversity of fish, wildlife, plants, and their habitats;
7. To protect and enhance the quality of aquatic habitat within the Refuge; and
8. To fulfill international treaty obligations of the United States with respect to fish and wildlife and their habitats.

Goals and planning principles were developed during the preparation of the Comprehensive Management Plan. These were largely based on comments that had been received during public and agency outreach activities. The following goals were developed to help guide the planning and management of the Refuge:

1. Manage wildlife and habitat to contribute to ecosystem management using strategies that recognize the Refuge's different resource types and the varying purposes specified in the enabling legislation;
2. Interact with communities and organizations through outreach and cooperative agreements to create mutually beneficial partnerships;
3. Develop environmental education and outreach programs for urban communities to nurture an appreciation of nature, which ultimately results in fostering an environmental consciousness, which promotes conservation of our natural resources;
4. Provide opportunities for wildlife-oriented recreational activities;
5. Utilize the Refuge for research opportunities compatible with Refuge management; and
6. Develop a program support system to provide facilities, funding and resources necessary to accomplish Refuge purposes.

## **2.5 Visitation Levels and Visitor Profile**

The Rocky Mountain Arsenal National Wildlife Refuge is located in an urban area. Its visitation patterns are therefore different than with other wildlife refuges, with the main difference being that the greatest percentage of visits are by local residents versus tourists as with other sites. The mission of Rocky Mountain Arsenal National Wildlife Refuge is to combine the typical objective of providing wildlife habitat with providing enhanced environmental education opportunities related to wildlife and to the environmental history of the site.

## Diesel Bus with Elementary Students Disembarking at Visitor Center (BRW)



Currently, approximately 10,000 to 40,000 people visit the Refuge in a year. This number is anticipated to grow to 300,000 or more when the Refuge is fully operational (approximately year 2010). The Refuge hopes to attract more tourists in the future, as most of the visitors are locals. During the school year, September through May, the Rocky Mountain Arsenal is visited by over 6,000 students traveling in groups with their school class. Normally, the schools provide their own transportation, however, on occasion the Refuge is able to provide a bus to transport students from within the Denver metro area.

By year 2010, the following numbers of vehicles are projected to visit the Refuge:

- **Weekday** – 60 vehicles and four buses;
- **Weekend** – 330 vehicles (three times the number of existing vehicles);
- **Peak Weekday** – 140 cars and 10 buses; and
- **Peak Weekend** – 330 vehicles (with 2.37 people per car).

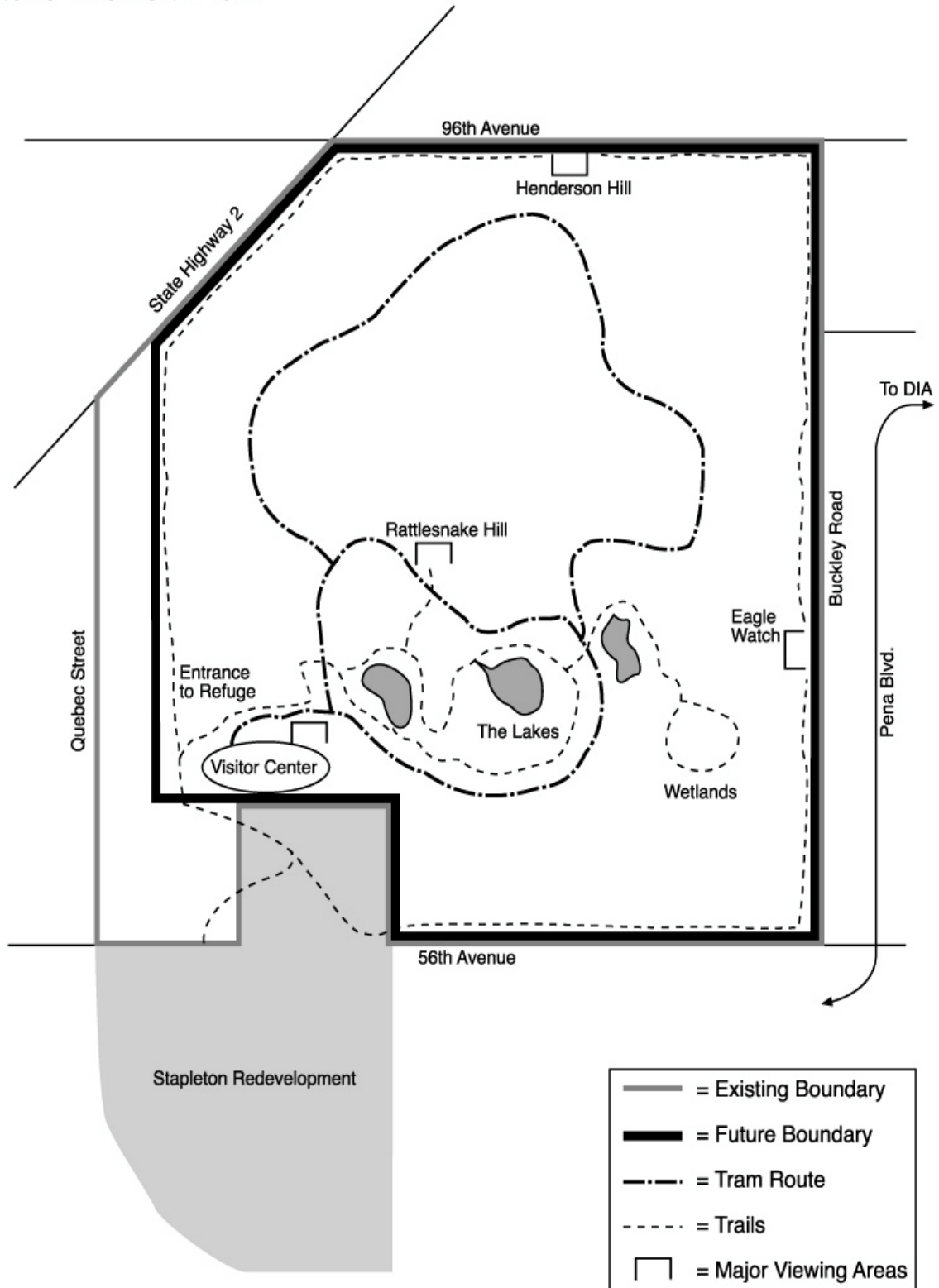
## ■ 3.0 Existing Conditions, Issues and Concerns

The Refuge is currently in the first phase of a three-phased transition of being transformed from an arsenal to a fully functioning refuge. Phase I activities were initiated in 1996 and will be completed in approximately 20 years. This section, including summaries on transportation, community development, natural resources and recreation issues, is presented assuming the transition of the Refuge into a fully functioning refuge has been completed.

The “completed” Refuge will be composed of several distinct zones: the gateway/western zone including the Visitor Center, the southern zone and the northern zone (see Figure 2).

Figure 2. Future Transit Plans

# *Rocky Mountain Arsenal National Wildlife Refuge Future Transit Plan*



Access will be limited to bus, trams, bikes and pedestrians. No private cars will be allowed on the Refuge. Cars will have to park at the Visitors Center or at other locations in the community. Within the Refuge, a tram will be available to transport visitors throughout the southern zone and into parts of the northern zone. The tram route, and other aspects of the public use, will be adjusted seasonally in response to the changing habitat needs of sensitive wildlife species.

The only entrance to the Refuge will be located in the southwestern corner of the site, with access provided by a gateway located at Quebec and 56<sup>th</sup> Avenue. This area, along with the western portion of the Refuge, will be the place for hustle and bustle of crowds. The Visitor Center complex, located at the gateway to Refuge, will include other facilities run cooperatively between the Fish and Wildlife Service and its partners. The campus of buildings here will include orientation and exhibit spaces, the environmental education center and laboratory, the administrative offices, restaurants, bookstores and other businesses.

Opportunities for public and private interaction and cooperation will occur in the gateway/western zone, which focuses on property that will be transferred from the Arsenal to private ownership. A variety of land uses in this area are anticipated, including possibly an extension to the Denver Zoo. Connecting the Refuge to the City of Commerce City and the Stapleton redevelopment are priorities.

The southern zone will be the main focus of activity in the Refuge and will help focus activities away from the main resources of the Refuge. In the southern zone, there will be trails for general public use and environmental education along with facilities for outdoor education and interpretation. Bicyclists will be allowed to use the southern tram route at specified times.

The northern portion of the Refuge will be the prime pristine area of resources in the Refuge and is intentionally a quieter, less visited place. Except for around Rattlesnake Hill, there will be no trails for pedestrians and the only access for the public is provided by the tram, which will run less frequently here than on the southern route. Some visits will be allowed beyond the southern portion into the northern zone, but they will be reserved to tram tours. Access into the northern zone will be strictly controlled.

The total projected costs for instituting the plan of the fully functioning refuge is estimated to be \$65 million. This cost does not include the cost of environmental remediation activities. Major elements of the cost, listed below, include environmental/biological restoration of the refuge, construction of the Visitor Center Complex, and the creation of other facilities, roads and trails. Transportation-related facilities are included in the last category. (Estimates for the cost of purchasing and operating the trams are not available at this time.) Several sources will provide funding including those entities responsible for the environmental cleanup, such as Shell Oil, the proceeds from the sale of the 815 acres in the western area of the original arsenal property, the federal government, and other partnerships.

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Refuge Restoration	\$31,500,000
Visitor Center Complex	21,300,000
Site Amenities & Retrofitted Facilities	12,400,000
<b>Total</b>	<b>\$65,200,000</b>



## Existing Propane-Powered Trolley with Trailer (BRW)



### 3.1 Transportation Conditions, Issues and Concerns

ATs in the Refuge are presently limited. A small trolley gives tours on a limited basis to school groups and to the public on Saturdays. This trolley, fueled with propane, is owned and operated by the Fish & Wildlife Service. It can accommodate 4,000 to 7,000 people per year. Aside from this, access to the Refuge is limited to private automobiles and buses on a controlled basis.

Activities to be completed during the entire transition are promising as they relate to ATS, as are outlined below.

#### *Phase I*

- One of the main elements of Phase I transportation activities includes instituting a regularly scheduled tram service along a 5.5-mile loop in the southern half of the Refuge. This service will be combined with special tours and education group visits. The route will start at the Visitor Center and run by the main trains and facilities encircling the lakes. It is designed to limit access to and help preserve the resources of the Refuge. It will accommodate a bicycle lane and will include pull-outs for spontaneous stops to view wildlife. Other activities to be completed in this phase include the following:
  - Demolition of 30 miles of existing roads and the construction of the tram route in the southern half of the Refuge.
  - Road signs will be erected to help direct visitors to the Refuge and the Visitors Center. On site signs will help control bike, bus and tram traffic.
  - A bike lane will be included with room for spontaneous stops for viewing wildlife and interpretation. Bicyclists will be confined to the wide shoulder along the tram route and the times and numbers will be controlled. Limited parking at educational trailheads will be allowed for buses with environmental education student groups and other special groups – not the general public.



- The perimeter fence will be created as the Refuge boundary. This fence will provide the opportunity to mitigate visual impact, prevent the movement of deer off of the Refuge, and reduce trespassing and poaching of wildlife. The boundary will include the creation of the perimeter trail on the outside of the boundary, which will be constructed during a Phase II.

### ***Phase II***

- A main trail will be created that will connect the visitor center with the Refuge trails that will offer viewing opportunities and interpretive signs.
- Parking will be provided at the visitor center for 125 public autos, 10 recreational vehicles and four buses.
- Most trails will be created in this phase, including the Officers Row Trail and other connective trails, and the perimeter trail. The perimeter trail will connect to other regional trails and will provide place for activities not consistent with those in the Refuge. This trail will connect to two overlooks and the Visitor Center.
- Interior secondary service roads will also be created.

### ***Phase III***

- An internal perimeter service road will be created.
- The tram route will be extended into the northern portion of the Refuge as part of Phase III. Visitors will start from the Visitors Center and reach the northern route via the southern loop. The nine-mile-long northern route will also provide internal access to the seasonal eagle watch area. This route will also act as the main access road for service vehicles.
- Construction of the maintenance facility for the trams will also be included in this phase.

### ***Existing Regional Transit Service***

Transit service currently provided by the Regional Transportation District does not provide direct access to the Refuge. Creating better connections to the regional transit system has been frequently expressed by Refuge staff. Transit service provided in the vicinity of the Refuge includes the following routes:

- To the west side, Routes 48 and 72 serve the Commerce City park-n-Ride located at 72<sup>nd</sup> Avenue and U.S. 85. Of these two routes, Route 48 comes closest to the Refuge when it travels on Quebec between 70<sup>th</sup> and 72<sup>nd</sup> Avenues. In addition, Route 88 also circulates through the Rose Hill neighborhood of Commerce City. This route comes closest to the Refuge at 56<sup>th</sup> Avenue and Quebec.
- To the south, several routes circulate through the Montbello neighborhood of Denver: Routes 44, 47X 53, 54 and 121 serve this neighborhood and stop at the Montbello

park-n-Ride located near I-70 at Peoria. The Routes 44 and 54 currently drive closest to the site of the future Visitors Center, one block south of 56<sup>th</sup> Avenue between Havana and Peoria Streets.

- No transit routes currently exist to the immediate north of the Refuge.
- To the east, Sky Ride routes follow Pena Boulevard to Denver International Airport

### **3.2 Community Development Conditions, Issues and Concerns**

Interaction with the surrounding community is a big focus of the Refuge. The Refuge would like to be seen as more than merely some trails and a visitor center. A goal stated for the management of the Refuge includes “interacting with communities and organizations through outreach and cooperative agreements to create mutually beneficial partnerships.” To this end, opportunities for interacting with other entities exist especially in the western/gateway zone as discussed previously.

A large component of community development activities provided in the Refuge includes the educational activities to be provided. This is consistent with the goal for the operation of the Refuge as stated to: “develop environmental and outreach programs for urban communities to nurture an appreciation of nature...”

The visitor center will function as a community center instead of a narrowly focused facility. It will provide artifacts, and exhibits related to resources, history, and cleanup of site. It will include the environmental education center including laboratory and classrooms. It will also include a bookstore and a 200-seat theatre/auditorium.

Outdoor classrooms will accommodate up to 60 students. Informational signage and exhibits will be included in various areas. The prairie nursery will provide demonstrations and exhibits of restoration efforts. Rattlesnake Hill environmental education area will provide an overview of history, cleanup and resources of the Refuge. Both the Lakes and Wetlands areas will have environmental education areas.

### **3.3 Natural or Cultural Resource Conditions, Issues and Concerns**

The overriding mission of the Refuge is to preserve and enhance wildlife and wildlife habitat. The northern portion of the Refuge will be largely off limits to public access to ensure this goal. Restoration of the Refuge’s habitats will be undertaken as part of the U.S. Army’s remediation efforts. The majority of activities included in the creation and operation of the Refuge are done in accord to the Wildlife Management Act, including the overall environmental cleanup and contamination clean up. In Phases I through III, specific activities related to natural resources will include the following:

- Prairie restoration – Reseeding and replanting native plant cover is needed where practicable in areas that have been heavily disturbed during the process of environmental

cleanup. Different areas will be revegetated according to the type of area. Most restoration will occur in the northern zone.

- A prairie nursery will be created that will include 10 acres for the propagation of prairie plant material for habitat restoration. It will be accessible by visitors and will include an area to learn about prairie restoration.
- Four wetlands will be artificially created to mitigate for wetland loss as a result of the environmental cleanup process. Only guided public access will be allowed to view these areas during the winter months.
- A research facility will provide a laboratory for ongoing biomonitoring and wildlife research. Refuge management activities will be demonstrated at this facility.
- Bald eagle shallows areas along First Creek will be enlarged, and a new outlet structure will be installed as part of basin-wide stormwater detention plan. This will help mitigate the increased frequency of rising flows that have contributed to destabilizing the cottonwoods that serve as the bald eagle roosts.
- First Creek Restoration – Restoration will be undertaken to return this creek to its historic channel geometry and length. The eagle roost area will be maintained. Appropriate vegetation communities will be planned and wetlands will be restored. The goal will be to create self-sustaining plant communities. This will help restore historic wetlands and improve habitat value and reduce downstream flooding risks.
- Reintroduction of selected species – Wildlife species that have historically been associated with prairie grassland communities but are now missing from the Refuge will be reintroduced. Targeted species for reintroduction include: bison, pronghorn antelope, prairie chicken and plains sharp-tailed grouse. These species will contribute to the identity of the Refuge and assist in maintaining the grassland community structure.

### **3.4 Recreation Conditions, Issues and Concerns**

An articulated purpose for the Refuge is to provide public uses at levels compatible with the conservation and enhancement of wildlife and wildlife habitat. Because of this, recreational activities may be more limited to visitors in order to protect wildlife compared to other national and regional parks. While providing recreational activities to visitors and residents in the area is not the primary goal of the Refuge, several opportunities for recreational activities will exist in the fully functioning refuge:

- Bicycling, rollerblading, hiking, and equestrian use will be allowed along the perimeter trail;
- Limited bicycling and hiking will be allowed in the interior of the Refuge at selected trails in the southern portion of the Refuge;

- Picnic tables will be provided at selected sites; and
- Other nature activities such as fishing and bird watching will be encouraged at certain locations.

Educational activities are discussed in Community Development conditions in the previous section.

## ■ 4.0 Planning and Coordination

### 4.1 Unit Plans

The Rocky Mountain Arsenal National Wildlife Refuge Comprehensive Management Plan is the main plan guiding the transition of the arsenal into a fully operating refuge. Elements included in this plan are discussed in detail previously in Section 3.0. This plan, which was compiled over several years and completed in March 1996. Extensive community and agency outreach activities were conducted to include these parties in the creation of the Plan.

### 4.2 Public and Agency Coordination

The Refuge management, led by the USFWS, is working closely with the United States Environmental Protection Agency (EPA), the Colorado Health Department, the United States Army, and Shell Oil Corporation on issues related to the environmental clean up of the site and the EPA national priority list designation. In addition, the Refuge staff is coordinating closely with the surrounding jurisdictions of Denver, Aurora, Commerce City, and Adams County on matters related to transportation, land use and recreational opportunities. Environmental education coordination is carried out with numerous public and private school districts. Refuge personnel are participating in planning groups working on reuse and redevelopment of the former Stapleton International Airport site.

## ■ 5.0 Assessment of Need

### 5.1 Magnitude of Need

Transportation is seen a vital element in making the Refuge fully operational. The proposed tram service is expected to be adequate in meeting the circulation demands within the Refuge for several years. Eventually, more frequent tram service may be needed, beyond that which is planned for opening year.

Transportation to and from the Refuge, however, is one of the main transportation concerns cited by the Refuge staff. Future visitation, especially by those less likely or able to visit the site, depends on providing better access via modes other than personal vehicles. This also correlates to the goal to make a continuous, special effort to reach and involve the Refuge's neighbors. Providing more direct linkage between the Refuge and the surrounding communities and the metropolitan area is becoming more important.

Transportation is seen by Refuge staff as a vital element in the fully operational Refuge. Specifically, Refuge staff would like to focus on improving alternative transportation modes to access the Refuge. The transit program is a key element in ensuring the success of the environmental education program. Because of the limited availability of schools buses, transit is often the only viable solution available. A goal for the transit program should be to make it easier for young people to get to the Refuge who may not have means other than using the RTD bus. In addition, providing more direct transit connections to the Refuge will be helpful for the 75 projected Refuge staff in getting to their jobs.

The issue of parking is also a concern. Currently, the Refuge does not have enough parking to accommodate large groups of visitors. The only parking for public use will be provided at the Visitor Center. Encouraging visitors to park at overflow parking lots located off-site will be challenging. Some lots, such as that at the Mile High Kennel Club, will be far enough away that a shuttle service will be needed to transport these visitors to the visitor center. Also, it is challenging to find and arrange agreements for overflow parking.

## **5.2 Feasible Alternatives**

The following are suggestions for additional ATS alternatives that could be implemented in addition to the proposed tram service.

A great need for better transit connection to the Refuge has been expressed. Improvements in the existing RTD bus service would be the easiest to accomplish in the shorter term and would likely include rerouting and/or additional operations. It appears that the Route 88 currently serving the Rose Hill neighborhood could most easily stop at the future Refuge Visitors Center. Also, possibly the Routes 44, 54 or 121 serving the Montbello neighborhood could stop at the Visitor Center in the future, depending on which route will be extended to serve the newly redeveloped Stapleton site. More direct bus service between the Refuge Visitor Center and such sites as the park-n-Rides, Denver International Airport, and other locations has been suggested.

In addition, fixed guideway transit corridors are currently being considered that may be in the vicinity of the Refuge. Included in the Year 2020 Regional Transportation Plan as established by the Denver Regional Council of Governments, a station along the East Corridor commuter rail line is proposed for Quebec at Smith Road (just south of I-70). In addition, the RTD North Metro Transportation Study is identifying alternatives to improve congestion for the northeastern metro area. Rail corridors paralleling Colorado Boulevard and U.S. 85/Brighton Blvd. are being considered for fixed guideway transit. Station locations for these alternatives have yet to be identified. A shuttle service providing connection between the Visitor Center and these future stations will also encourage direct access to the Refuge.

Shuttle service to off-site parking facilities also would be helpful, especially during peak visitation seasons and events. Such sites as the Mile High Kennel Club Racetrack have been identified as overflow parking sites.

Extension of the planned tram service may be warranted in the future. After the proposed tram service has been operating for several years, it may be appropriate to reassess service frequencies and add additional service.

Connection of Refuge trails to regional and local trails will be needed once the Refuge trails are constructed. Trails should connect to Stapleton Redevelopment and Montbello neighborhoods, for example, and the Emerald Strands open space network.

## ■ 6.0 Bibliography

*Discover a New Refuge*, Comprehensive Management Plan. Produced by the Rocky Mountain Arsenal National Wildlife Refuge, March 1996.

## ■ 7.0 Persons Interviewed

Debbie Long, Public Participation Coordinator, Rocky Mountain Arsenal National Wildlife Refuge

Tom Jackson, U.S. Fish and Wildlife Service

Laurie C. Shannon, Outdoor Recreation Planner, Rocky Mountain Arsenal National Wildlife Refuge, U.S. Fish and Wildlife Service